EXHIBIT 9

IN THE UNITED STATES
PATENT AND TRADEMARK OFFICE

Patent Application

Inventor(s):	Dat D. Ngo		
Case:	Ngo 1 (Our File: ALU/124986)		
Serial No.:	10/448,559	**Group Art Unit:**	2613
Filed:	05/30/2003	**Confirmation #:**	4779
Examiner:	Li, Shi K		
Title:	PROTECTION SWITCHING IN WDM RINGS USING A SHARED RING SWITCH		

MAIL STOP APPEAL BRIEF-PATENTS
COMMISSIONER FOR PATENTS
P.O. BOX 1450
ALEXANDRIA, VA 22313-1450

SIR:

AMENDED APPEAL BRIEF

In response to the March 24, 2009 Notification of Non-Compliant Appeal Brief, Appellant submits this Amended Appeal Brief to the Board of Patent Appeals and Interferences on appeal from the decision of the Examiner of Group Art Unit 2613 mailed November 19, 2008 finally rejecting claims 1-3, 7-12, 14-22 and 24-28. The final rejection of only claims 1-3, 7-11, 20-22 and 24-28 is being appealed.

In the event that an extension of time is required for this appeal brief to be considered timely, and a petition therefor does not otherwise accompany this appeal brief, any necessary extension of time is hereby petitioned for.

Appellant believes that **no fees are due** in connection with this submission, since $540 Appeal Brief fee was charged to counsel's credit card with the submission of the Appeal Brief on February 27, 2009. In the event Appellant is incorrect, the Commissioner is authorized to charge any other fees to Deposit Account No. 50-4802/**ALU/124986**.

Table of Contents

Real Party in Interest

The real party in interest is ALCATEL-LUCENT, INC. The assignee of record is LUCENT TECHNOLOGIES INC, which merged with ALCATEL INC. to form ALCATEL-LUCENT, INC.

Related Appeals and Interferences

Appellant asserts that no appeals or interferences are known to Appellant, Appellant's legal representative, or assignee which will directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal.

Status of Claims

Claims 1–28 were originally presented in the application. Claims 1-3, 7-12, 14-22 and 24-28 are pending in the application. Claims 1, 3, 7-12, 15-22 and 24-27 have been amended. Claims 4-6, 13 and 23 have been cancelled. The final rejection of claims 1-3, 7-11, 20-22 and 24-28 is appealed. The final rejection of claims 12 and 14-19 is not appealed.

Status of Amendments

All claim amendments have been entered.

Summary of Claimed Subject Matter

A first embodiment of the present invention is generally directed toward switching a transmission port in response to an indication of BER degradation. In one embodiment, a method includes collecting bit error rate (BER) values, storing the BER values, analyzing the BER values using a BER hysteresis algorithm to check for an indication of BER degradation, and switching a transmission port in response to an indication of BER degradation. The analysis of BER values using a BER hysteresis algorithm to check for an indication of BER degradation includes, for each of a plurality of recent ones of the collected BER values, comparing the BER value to a predetermined BER threshold level for determining whether the BER value exceeds the predetermined BER threshold level. The recent ones of the collected BER values include a subset of the collected BER values. The analysis of BER values using a BER hysteresis algorithm to check for an indication of BER degradation further includes, in response to a determination that each of the recent ones of the collected BER values exceeds the predetermined BER threshold level, determining whether the collected BER values worsen over time, and detecting an indication of BER degradation in response to a determination that the collected BER values worsen over time.

A second embodiment of the present invention is generally directed toward switching signals between optical channels. In one embodiment, a method includes transmitting an in-band signal via a first optical channel towards a multiplexer, and transmitting an out-of-band signal via a second optical channel towards the multiplexer. In response to detection of a condition on the first optical channel without detection of a condition on the second optical channel, the in-band signal is switched to a third optical channel using a span switch operation. In response to detection of a condition on the first optical channel and detection of a condition on the second optical, the in-band signal is switched to a third optical channel using a ring switch operation.

For the convenience of the Board of Patent Appeals and Interferences, Appellant's independent claims 1, 20, and 22 are presented below with citations to various figures and appropriate citations to at least one portion of the specification for elements of the appealed claims.

Claim 1 positively recites (with reference numerals, where applicable, and cites to at least one portion of the specification added):

1. (previously presented) A method (300), comprising:

(a) collecting a plurality of bit error rate (BER) values (Figure 3, 304, 308; Pg. 5, Line 29 – Pg. 7, Line 22);

(b) storing said BER values (Figure 3, 304, 308; Pg. 5, Line 29 – Pg. 7, Line 22);

(c) analyzing said BER values using a BER hysteresis algorithm to check for an indication of BER degradation, wherein said analyzing comprises:

comparing each of a plurality of recent ones of said collected BER values to a predetermined BER threshold level, wherein said recent ones of said collected BER values include a subset of said collected BER values (Figure 3, 306, 310, 312, 314, 316; Pg. 7, Line 14 – Pg. 8, Line 15);

determining, for each of said recent ones of said collected BER values, whether said recent BER value exceeds said predetermined BER threshold level (Figure 3, 306, 310, 312, 314, 316; Pg. 7, Line 14 – Pg. 8, Line 22);

in response to a determination that each of said recent ones of said collected BER values exceeds the predetermined BER threshold level, determining whether said collected BER values worsen over time (Figure 3, 314, 318, 320; Pg. 8, Lines 5 – 30);

in response to a determination that said collected BER values worsen over time, detecting an indication of BER degradation (Figure 3, 320, 328; Pg. 8, Lines 23 – 28); and

(d) switching a transmission port in response to said indication of BER degradation (Figure 3, 328; Pg. 5, Line 18 – Pg. 6, Line 8).

Claim 20 positively recites (with reference numerals, where applicable, and cites to at least one portion of the specification added):

20. (previously presented) A method, comprising:

transmitting an in-band signal via a first optical channel (508) towards a multiplexer (514_1); (Pg. 12, Lines 5 – 28; Pg. 12, Line 29 – Pg. 13, Line 5)

transmitting an out-of-band signal via a second optical channel (506_1) towards said multiplexer (514_1); (Pg. 12, Lines 5 – 28; Pg. 12, Line 29 – Pg. 13, Line 5)

in response to detection of a condition on said first optical channel (508) without detection of a condition on said second optical channel (506_1), switching the in-band signal to a third optical channel (520) using a span switch operation; (Pg. 13, Lines 6 – 19) or

in response to detection of a condition on said first optical channel (508) and detection of a condition on said second optical (506_1), switching the in-band signal to a third optical channel (520) using a ring switch operation (Pg. 13, Line 20 – Pg. 14, Line 3).

Claim 22 positively recites (with reference numerals, where applicable, and cites to at least one portion of the specification added):

22. (previously presented) An optical switch comprising a processor in a memory, said optical switch adapted to perform the steps of:

(a) collecting a plurality of bit error rate (BER) values (Figure 3, 304, 308; Pg. 5, Line 29 – Pg. 7, Line 22);

(b) storing said BER values (Figure 3, 304, 308; Pg. 5, Line 29 – Pg. 7, Line 22);

(c) analyzing said BER values using a BER hysteresis algorithm to check for an indication of BER degradation, wherein said analyzing comprises:

comparing each of a plurality of recent ones of said collected BER values to a predetermined BER threshold level, wherein said recent ones of said collected BER values include a subset of said collected BER values (Figure 3, 306, 310, 312, 314, 316; Pg. 7, Line 14 – Pg. 8, Line 15);

determining, for each of said recent ones of said collected BER values, whether said recent BER value exceeds said predetermined BER threshold level (Figure 3, 306, 310, 312, 314, 316; Pg. 7, Line 14 – Pg. 8, Line 22);

in response to a determination that each of said recent ones of said collected BER values exceeds the predetermined BER threshold level, determining whether said collected BER values worsen over time (Figure 3, 314, 318, 320; Pg. 8, Lines 5 – 30);

in response to a determination that said collected BER values worsen over time, detecting an indication of BER degradation (Figure 3, 320, 328; Pg. 8, Lines 23 – 28); and

(d) switching a transmission port in response to said indication of BER degradation (Figure 3, 328; Pg. 5, Line 18 – Pg. 6, Line 8).

Grounds of Rejection to be Reviewed on Appeal

Claims 1-2 and 22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Vieregge et al. (U.S. Patent No. 6,915,463 B2, hereinafter Vieregge).

Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over Vieregge in view of Gillett (U.S. Patent no. 5,627,837, hereinafter Gillett).

Claims 7-9 and 24-26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Vieregge and Gillett, and further in view of Soltysiak et al. (U.S. Patent No. 6,775,237 B2, hereinafter Soltysiak).

Claims 10-11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Vieregge in view of Li (U.S. Patent Application Publication No. 2002/0018616 A1, hereinafter Li) and Ryhorchuk et al. (U.S. Patent No. 7,113,698 B1, hereinafter Ryhorchuk).

Claims 20-21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Li in view of Ryhorchuk.

Claims 27-28 are rejected under 35 U.S.C. 103(a) as being unpatentable over Vieregge, Gillett, and Soltysiak, and further in view of de Boer.

Arguments

I. THE EXAMINER ERRED IN REJECTING CLAIMS 1-3, 7-11, 20-22, AND 24-28 UNDER 35 U.S.C. §103(A) BECAUSE THE EXAMINER FAILED TO ESTABLISH A *PRIMA FACIE* CASE OF OBVIOUSNESS

A. Claims 1-2 and 22

1. Claims 1-2

Claims 1-2 are rejected under 35 U.S.C. 103(a) as being unpatentable over Vieregge. The rejection is traversed.

The Examiner bears the initial burden of establishing a prima facie case of obviousness. See MPEP §2141. Establishing a prima facie case of obviousness begins with first resolving the factual inquiries of Graham v. John Deere Co. 383 U.S. 1 (1966). The factual inquiries are as follows:

(A) determining the scope and content of the prior art;

(B) ascertaining the differences between the claimed invention and the prior art;

(C) resolving the level of ordinary skill in the art; and

(D) considering any objective indicia of nonobviousness.

Once the Graham factual inquiries are resolved, the Examiner must determine whether the claimed invention would have been obvious to one of ordinary skill in the art. The key to supporting a rejection under 35 U.S.C. §103 is the clear articulation of the reasons why the claimed invention would have been obvious. The analysis supporting such a rejection must be explicit. "[R]ejections on obviousness grounds cannot be sustained by mere conclusory statements; instead, there must be some articulated reasoning with some rational underpinning to support the legal conclusion of obviousness." In re Kahn, 441 F. 3d 977, 988 (CA Fed. 2006), cited with approval in KSR Int'l Co. v. Teleflex, Inc., 126 S. Ct. 2965 (2006); see also MPEP §2141.

According to MPEP §2143.03: "[a]ll words in a claim must be considered in judging the patentability of that claim against the prior art" (*quoting*, *In re Wilson*, 424 F.2d 1382, 1385, 165 USPQ 494, 496 (CCPA 1970)). In addition, to establish a prima facie case of obviousness the prior art reference (or references when combined) must teach or suggest all elements of the subject claim. *In re Wada*, 2007-3733 (BPAI Jan. 14, 2008) (*citing*, *CMFT, Inc. v. Yieldup Intern. Corp.*, 349 F.3d 1333, 1342 (Fed.Cir. 2003)).

Vieregge fails to teach or suggest all of the elements of Appellant's independent claim 1.

Vieregge discloses nodes which perform protection switching on the basis of raw signal quality information, such as raw bit error rate (BER) information, in a manner which causes protection switching to occur before an actual failure has occurred. (Vieregge, Abstract). As disclosed in Vieregge, a network node includes a quality determination module, and a failure predictor which may initiate a protection switching operation. As further disclosed in Vieregge, the failure predictor may employ some intelligence in order to distinguish between a situation in which bit error rate (BER) is temporarily increased but a failure is not about to occur, and a situation in which a failure is about to occur. (Vieregge, Col. 5, Lines 49 – 52).

Vieregge, however, fails to teach or suggest at least the limitations of "comparing each of a plurality of recent ones of said collected BER values to a predetermined BER threshold level; determining, for each of said recent ones of said collected BER values, whether said recent BER value exceeds said predetermined BER threshold level, wherein said recent ones of said collected BER values include a subset of said collected BER values; in response to a determination that each of said recent ones of said collected BER values exceeds the predetermined BER threshold level, determining whether said collected BER values worsen over time; and in response to a determination that said collected BER values worsen over time, detecting an indication of BER degradation," as claimed in Appellant's claim 1.

In the Final Office Action, dated November 19, 2008, the Examiner cites a specific portion of Vieregge (namely, Col. 5, Lines 49 – 64) asserting that the cited portion of Vieregge discloses these limitations of the analyzing step of Appellant's claim 1. Appellant respectfully disagrees.

Appellant respectfully submits that the portion of Vieregge cited by the Examiner fails to disclose the limitations of the analyzing step of Appellant's claim 1. As disclosed in the cited portion of Vieregge, in one embodiment "...the failure predictor could require that in addition to the latest BER exceeding the threshold IBr, a rate of increase (for example between two consecutive measurements) must also exceed some value indicating that a failure is likely with the assumption that a slow increase is less likely to be indicative of an imminent failure." (Vieregge, Col. 5, Lines 52 – 58). As further disclosed in the cited portion of Vieregge, in another embodiment "...two predictive thresholds (both below the failure threshold may be used, and if the two thresholds are crossed in a short enough period of time, then the decision to instigate protection switching is made." (Vieregge, Col. 5, Lines 58 – 64).

With respect to the first embodiment described in the cited portion of Vieregge, Appellant submits that steps of determining whether a last BER value exceeds a threshold and determining whether a rate of increase between two consecutive BERs exceeds a value, as disclosed in Vieregge, does not teach or suggest comparing each of a plurality of recent ones of collected BER values to a predetermined BER threshold level, determining whether the recent ones of the collected BER values exceed a predetermined BER threshold level, and, in response to a determination that each of the recent ones of the collected BER values exceeds the predetermined BER threshold level, determining whether collected BER values (of which the recent BER values are a subset) worsen over time, as claimed in Appellant's claim 1.

With respect to the second embodiment described in the cited portion of Vieregge, Appellant submits that determining if two thresholds are crossed in a short enough period of time, as disclosed in Vieregge, fails to teach or suggest comparing each of a plurality of recent ones of collected BER values to a predetermined BER threshold level, determining whether the recent ones of the collected BER values exceed a predetermined BER threshold level, and, in response to a determination that each of the recent ones of the collected BER values exceeds the predetermined BER threshold level, determining whether the collected BER values (of which the recent BER values are a subset) worsen over time, as claimed in Appellant's claim 1.

Thus, Appellant submits that Vieregge, including the portions of Vieregge cited by the Examiner, fails to teach or suggest the specific arrangement of Appellant's claim 1. Appellant's claim 1 includes limitations of collecting BER values, comparing each of a plurality of recent ones of the collected BER values to a predetermined BER threshold level, determining for each of the recent ones of the collected BER values whether the recent BER value exceeds the predetermined BER threshold level, and in response to a determination that each of the recent ones of the collected BER values exceeds the predetermined BER threshold level, determining whether the *collected BER values* worsen over time. As claimed in Appellant's claim 1, the recent ones of the collected BER values compared to the predetermined BER threshold level include a subset of the collected BER values which are evaluated to determine whether BER values worsen over time. An example of this may be seen by way of reference to Figure 3 of Appellant's originally-filed application, in which the collected BER values include ten (10) BER values and the recent ones of the collected BER values include three (3) BER values. This may be seen from the combination of steps 310, 312, 314, and 316. As depicted in Figure 3 of Appellant's application, each time a recent BER value exceeds the threshold, a FLAG counter value (which is initialized to 0) is incremented by one. As further depicted in Figure 3 of Appellant's originally-filed application, after the value of the FLAG counter is greater than two (see step 314), which indicates that the three most recent BER values (of the ten most recently collected BER values) each exceed a BER threshold, the ten collected BER values are compared to determine if the ten collected BER values worsen over time (see step 318). In other words, when each of a plurality of recent BER values, which are a subset of a larger set of collected BER values, exceeds a BER threshold, a determination is made as to whether the larger set of collected BER values worsens over time. By contrast, as described hereinabove, Vieregge merely discloses determining if the latest BER value exceeds a threshold and determining that a rate of increase between two consecutive measurements must exceed some value, or determining if two thresholds are crossed in a short enough period of time. Vieregge fails to teach or suggest determining whether a set of collected BER values worsen over time, in response to a determination that each of a plurality of BER values in a subset of that set of collected BER values exceeds a BER threshold.

In the Final Office Action, the Examiner, citing Col. 5, Lines 49 – 64 of Vieregge, asserts that "Vieregge at al. teaches in line 61 that two predictive thresholds (both below the failure threshold) may be used, and if the two thresholds are crossed in a short enough period of time, then the decision to instigate protection switching is made." Then, on the basis of the cited portion of Vieregge, the Examiner concludes that "…Vieregge at al. teaches comparing collected BER values to a predetermined BER threshold level. Vieregge et al. teaches that if each of the two recent ones of said collected BER values exceed the predetermined BER threshold level, determining whether said collected BER values worsen over time and perform protection switch if the BER values worsen." (Office Action, Pg. 2). Appellant respectfully disagrees.

With respect to the Examiner's arguments in the Final Office Action, the Appellant submits that the Examiner's conclusions regarding the teachings of Vieregge do not comport with the teachings of Vieregge. As noted by the Examiner, the cited portion of Vieregge states that "…two predictive thresholds (both below the failure threshold) may be used, and if the two thresholds are crossed in a short enough period of time, then the decision to instigate protection switching is made." (Vieregge, Col. 5, Lines 61 – 64). The cited portion of Vieregge does not support the Examiner's conclusion that Vieregge discloses that if each of the two recent ones of collected BER values exceed the predetermined BER threshold level, determining whether the collected BER values worsen over time and performing a protection switch if the BER values worsen. The cited portion of Vieregge is devoid of any teaching or suggestion of determining if BER values worsen over time. Thus, the Examiner's conclusions regarding the teachings of Vieregge do not comport with the teachings of Vieregge and, therefore, the Examiner has failed to establish a prima facie case of obviousness of Appellant's claim 1.

In the Response to Arguments section of the Final Office Action, dated November 19, 2008, the Examiner argues that "Vieregge et al. teaches in col. 5, lines 61 – 64 to use two predictive thresholds…, and if the two thresholds are crossed in a short enough period of time, then the decision to instigate protection switching is made. Note that inherently, or obviously, the second predictive threshold is higher than the first predictive threshold and the two samples both exceed the lower predictive threshold." (Final Office

Action, Pg. 11). In the Response to Arguments section of the Final Office Action, dated November 19, 2008, the Examiner makes a similar argument, and then concludes that "...Vieregge at al. teaches making a decision based on a plurality of recent ones of the collected BER." (Office Action, Pg. 12). Appellant respectfully disagrees.

In response to the Examiner's arguments in the Response to Arguments section of the Final Office Action, the Appellant notes that the cited portion of Vieregge fails to teach or suggest the limitations associated with the analyzing step of Appellant's claim 1. As noted by the Examiner, the cited portion of Vieregge states that if two thresholds are crossed in a short enough period of time, then the decision to instigate protection switching is made. A statement that a decision to instigate protection switching is made if two thresholds are crossed in a short enough period of time, as disclosed in Vieregge, does not teach or suggest comparing each of a plurality of recent ones of collected BER values to a predetermined BER threshold level, determining whether the recent ones of the collected BER values exceed a predetermined BER threshold level, and, in response to a determination that each of the recent ones of the collected BER values exceeds the predetermined BER threshold level, determining whether the collected BER values (of which the recent BER values are a subset) worsen over time, as claimed in Appellant's claim 1.

In response to the Examiner's arguments in the Response to Arguments section of the Final Office Action, the Appellant further notes that the Examiner's arguments and associated conclusion fail to address the specific limitations of Appellant's claim 1. Namely, on the basis of the cited portion of Vieregge, the Examiner concludes that Vieregge discloses making a decision on the basis of a plurality of recent ones of collected BER values. Appellant's claim 1, however, does not merely claim making a decision based on a plurality of recent ones of collected BER values. Rather, as noted hereinabove, Appellant's claim 1 includes specific limitations of comparing each of a plurality of recent ones of collected BER values to a predetermined BER threshold level, determining whether the recent ones of the collected BER values exceed a predetermined BER threshold level, and, in response to a determination that each of the recent ones of the collected BER values exceeds the predetermined BER threshold level, determining whether the collected BER values (of which the recent BER values are a subset) worsen

over time, as claimed in Appellant's claim 1. Vieregge is devoid of any teaching or suggestion of these limitations.

Thus, at least for these reasons, Vieregge fails to teach or suggest all of the elements of Appellant's independent claim 1.

As such, independent claim 1 is patentable over Vieregge under 35 U.S.C. 103. Furthermore, since claim 2 depends from independent claim 1, and includes all the limitations of the independent claim 1 from which it depends, claim 2 also is patentable over Vieregge under 35 U.S.C. 103(a).

Appellant respectfully requests that the rejection be withdrawn.

2. Claim 22

Claim 22 is rejected under 35 U.S.C. 103(a) as being unpatentable over Vieregge. The rejection is traversed.

The Examiner bears the initial burden of establishing a prima facie case of obviousness. See MPEP §2141. Establishing a prima facie case of obviousness begins with first resolving the factual inquiries of Graham v. John Deere Co. 383 U.S. 1 (1966). The factual inquiries are as follows:

(A) determining the scope and content of the prior art;

(B) ascertaining the differences between the claimed invention and the prior art;

(C) resolving the level of ordinary skill in the art; and

(D) considering any objective indicia of nonobviousness.

Once the Graham factual inquiries are resolved, the Examiner must determine whether the claimed invention would have been obvious to one of ordinary skill in the art. The key to supporting a rejection under 35 U.S.C. §103 is the clear articulation of the reasons why the claimed invention would have been obvious. The analysis supporting such a rejection must be explicit. "[R]ejections on obviousness grounds cannot be sustained by mere conclusory statements; instead, there must be some articulated reasoning with some rational underpinning to support the legal conclusion of obviousness." In re Kahn, 441 F. 3d 977, 988 (CA Fed. 2006), cited with approval in KSR Int'l Co. v. Teleflex, Inc., 126 S. Ct. 2965 (2006); see also MPEP §2141.

According to MPEP §2143.03: "[a]ll words in a claim must be considered in judging the patentability of that claim against the prior art" (*quoting*, *In re Wilson*, 424 F.2d 1382, 1385, 165 USPQ 494, 496 (CCPA 1970)). In addition, to establish a prima facie case of obviousness the prior art reference (or references when combined) must teach or suggest all elements of the subject claim. *In re Wada*, 2007-3733 (BPAI Jan. 14, 2008) (*citing*, *CMFT, Inc. v. Yieldup Intern. Corp.*, 349 F.3d 1333, 1342 (Fed.Cir. 2003)).

Vieregge fails to teach or suggest all of the elements of Appellant's independent claim 22.

Vieregge discloses nodes which perform protection switching on the basis of raw signal quality information, such as raw bit error rate (BER) information, in a manner which causes protection switching to occur before an actual failure has occurred. (Vieregge, Abstract). As disclosed in Vieregge, a network node includes a quality determination module, and a failure predictor which may initiate a protection switching operation. As further disclosed in Vieregge, the failure predictor may employ some intelligence in order to distinguish between a situation in which bit error rate (BER) is temporarily increased but a failure is not about to occur, and a situation in which a failure is about to occur. (Vieregge, Col. 5, Lines 49 – 52).

Vieregge, however, fails to teach or suggest at least the limitations of "comparing each of a plurality of recent ones of said collected BER values to a predetermined BER threshold level; determining, for each of said recent ones of said collected BER values, whether said recent BER value exceeds said predetermined BER threshold level, wherein said recent ones of said collected BER values include a subset of said collected BER values; in response to a determination that each of said recent ones of said collected BER values exceeds the predetermined BER threshold level, determining whether said collected BER values worsen over time; and in response to a determination that said collected BER values worsen over time, detecting an indication of BER degradation," as claimed in Appellant's claim 22.

In the Final Office Action, dated November 19, 2008, the Examiner cites a specific portion of Vieregge (namely, Col. 5, Lines 49 – 64) asserting that the cited portion of Vieregge discloses these limitations of the analyzing step of Appellant's claim 22. Appellant respectfully disagrees.

Appellant respectfully submits that the portion of Vieregge cited by the Examiner fails to disclose the limitations of the analyzing step of Appellant's claim 22. As disclosed in the cited portion of Vieregge, in one embodiment "...the failure predictor could require that in addition to the latest BER exceeding the threshold IBr, a rate of increase (for example between two consecutive measurements) must also exceed some value indicating that a failure is likely with the assumption that a slow increase is less likely to be indicative of an imminent failure." (Vieregge, Col. 5, Lines 52 – 58). As further disclosed in the cited portion of Vieregge, in another embodiment "...two predictive thresholds (both below the failure threshold may be used, and if the two thresholds are crossed in a short enough period of time, then the decision to instigate protection switching is made." (Vieregge, Col. 5, Lines 58 – 64).

With respect to the first embodiment described in the cited portion of Vieregge, Appellant submits that steps of determining whether a last BER value exceeds a threshold and determining whether a rate of increase between two consecutive BERs exceeds a value, as disclosed in Vieregge, does not teach or suggest comparing each of a plurality of recent ones of collected BER values to a predetermined BER threshold level, determining whether the recent ones of the collected BER values exceed a predetermined BER threshold level, and, in response to a determination that each of the recent ones of the collected BER values exceeds the predetermined BER threshold level, determining whether collected BER values (of which the recent BER values are a subset) worsen over time, as claimed in Appellant's claim 22.

With respect to the second embodiment described in the cited portion of Vieregge, Appellant submits that determining if two thresholds are crossed in a short enough period of time, as disclosed in Vieregge, fails to teach or suggest comparing each of a plurality of recent ones of collected BER values to a predetermined BER threshold level, determining whether the recent ones of the collected BER values exceed a predetermined BER threshold level, and, in response to a determination that each of the recent ones of the collected BER values exceeds the predetermined BER threshold level, determining whether the collected BER values (of which the recent BER values are a subset) worsen over time, as claimed in Appellant's claim 22.

Thus, Appellant submits that Vieregge, including the portions of Vieregge cited by the Examiner, fails to teach or suggest the specific arrangement of Appellant's claim 22. Appellant's claim 22 includes limitations of collecting BER values, comparing each of a plurality of recent ones of the collected BER values to a predetermined BER threshold level, determining for each of the recent ones of the collected BER values whether the recent BER value exceeds the predetermined BER threshold level, and in response to a determination that each of the recent ones of the collected BER values exceeds the predetermined BER threshold level, determining whether the *collected BER values* worsen over time. As claimed in Appellant's claim 22, the recent ones of the collected BER values compared to the predetermined BER threshold level include a subset of the collected BER values which are evaluated to determine whether BER values worsen over time. An example of this may be seen by way of reference to Figure 3 of Appellant's originally-filed application, in which the collected BER values include ten (10) BER values and the recent ones of the collected BER values include three (3) BER values. This may be seen from the combination of steps 310, 312, 314, and 316. As depicted in Figure 3 of Appellant's application, each time a recent BER value exceeds the threshold, a FLAG counter value (which is initialized to 0) is incremented by one. As further depicted in Figure 3 of Appellant's originally-filed application, after the value of the FLAG counter is greater than two (see step 314), which indicates that the three most recent BER values (of the ten most recently collected BER values) each exceed a BER threshold, the ten collected BER values are compared to determine if the ten collected BER values worsen over time (see step 318). In other words, when each of a plurality of recent BER values, which are a subset of a larger set of collected BER values, exceeds a BER threshold, a determination is made as to whether the larger set of collected BER values worsens over time. By contrast, as described hereinabove, Vieregge merely discloses determining if the latest BER value exceeds a threshold and determining that a rate of increase between two consecutive measurements must exceed some value, or determining if two thresholds are crossed in a short enough period of time. Vieregge fails to teach or suggest determining whether a set of collected BER values worsen over time, in response to a determination that each of a plurality of BER values in a subset of that set of collected BER values exceeds a BER threshold.

In the Final Office Action, the Examiner, citing Col. 5, Lines 49 – 64 of Vieregge, asserts that "Vieregge at al. teaches in line 61 that two predictive thresholds (both below the failure threshold) may be used, and if the two thresholds are crossed in a short enough period of time, then the decision to instigate protection switching is made." Then, on the basis of the cited portion of Vieregge, the Examiner concludes that "…Vieregge at al. teaches comparing collected BER values to a predetermined BER threshold level. Vieregge et al. teaches that if each of the two recent ones of said collected BER values exceed the predetermined BER threshold level, determining whether said collected BER values worsen over time and perform protection switch if the BER values worsen." (Office Action, Pg. 2). Appellant respectfully disagrees.

With respect to the Examiner's arguments in the Final Office Action, the Appellant submits that the Examiner's conclusions regarding the teachings of Vieregge do not comport with the teachings of Vieregge. As noted by the Examiner, the cited portion of Vieregge states that "…two predictive thresholds (both below the failure threshold) may be used, and if the two thresholds are crossed in a short enough period of time, then the decision to instigate protection switching is made." (Vieregge, Col. 5, Lines 61 – 64). The cited portion of Vieregge does not support the Examiner's conclusion that Vieregge discloses that if each of the two recent ones of collected BER values exceeds the predetermined BER threshold level, determining whether the collected BER values worsen over time and performing a protection switch if the BER values worsen. The cited portion of Vieregge is devoid of any teaching or suggestion of determining if BER values worsen over time. Thus, the Examiner's conclusions regarding the teachings of Vieregge do not comport with the teachings of Vieregge and, therefore, the Examiner has failed to establish a prima facie case of obviousness of Appellant's claim 22.

In the Response to Arguments section of the Final Office Action, dated November 19, 2008, the Examiner argues that "Vieregge et al. teaches in col. 5, lines 61 – 64 to use two predictive thresholds…, and if the two thresholds are crossed in a short enough period of time, then the decision to instigate protection switching is made. Note that inherently, or obviously, the second predictive threshold is higher than the first predictive threshold and the two samples both exceed the lower predictive threshold." (Final Office

Action, Pg. 11). In the Response to Arguments section of the Final Office Action, dated November 19, 2008, the Examiner makes a similar argument, and then concludes that "...Vieregge at al. teaches making a decision based on a plurality of recent ones of the collected BER." (Office Action, Pg. 12). Appellant respectfully disagrees.

In response to the Examiner's arguments in the Response to Arguments section of the Final Office Action, the Appellant notes that the cited portion of Vieregge fails to teach or suggest the limitations associated with the analyzing step of Appellant's claim 22. As noted by the Examiner, the cited portion of Vieregge states that if two thresholds are crossed in a short enough period of time, then the decision to instigate protection switching is made. A statement that a decision to instigate protection switching is made if two thresholds are crossed in a short enough period of time, as disclosed in Vieregge, does not teach or suggest comparing each of a plurality of recent ones of collected BER values to a predetermined BER threshold level, determining whether the recent ones of the collected BER values exceed a predetermined BER threshold level, and, in response to a determination that each of the recent ones of the collected BER values exceeds the predetermined BER threshold level, determining whether the collected BER values (of which the recent BER values are a subset) worsen over time, as claimed in Appellant's claim 22.

In response to the Examiner's arguments in the Response to Arguments section of the Final Office Action, the Appellant further notes that the Examiner's arguments and associated conclusion fail to address the specific limitations of Appellant's claim 22. Namely, on the basis of the cited portion of Vieregge, the Examiner concludes that Vieregge discloses making a decision on the basis of a plurality of recent ones of collected BER values. Appellant's claim 22, however, does not merely claim making a decision based on a plurality of recent ones of collected BER values. Rather, as noted hereinabove, Appellant's claim 22 includes specific limitations of comparing each of a plurality of recent ones of collected BER values to a predetermined BER threshold level, determining whether the recent ones of the collected BER values exceed a predetermined BER threshold level, and, in response to a determination that each of the recent ones of the collected BER values exceeds the predetermined BER threshold level, determining whether the collected BER values (of which the recent BER values are a subset) worsen

over time, as claimed in Appellant's claim 22. Vieregge is devoid of any teaching or suggestion of these limitations.

Thus, at least for these reasons, Vieregge fails to teach or suggest all of the elements of Appellant's independent claim 22.

As such, independent claim 22 is patentable over Vieregge under 35 U.S.C. 103.

Appellant respectfully requests that the rejection be withdrawn.

B. Claim 3

Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over Vieregge in view of Gillett. The rejection is traversed.

Claim 3 depends from independent claim 1 and recites additional limitations thereof. Appellant submits that since the rejection of independent claim 1 under 35 U.S.C. 103(a) over Vieregge has been overcome, as described hereinabove, and there is no argument put forth by the Examiner that Gillett supplys that which is missing from Vieregge to render independent claim 1 unpatentable, this ground of rejection cannot be maintained.

Therefore, claim 3 is patentable under 35 U.S.C. 103(a) over Vieregge in view of Gillett.

Appellant respectfully requests that the rejection be withdrawn.

C. Claim 7-9 and 24-26

1. Claims 7-9

Claims 7-9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Vieregge and Gillett, and further in view of Soltysiak. The rejection is traversed.

Claims 7-9 depend from independent claim 1 and recite additional limitations thereof. Appellant submits that since the rejection of independent claim 1 under 35 U.S.C. 103(a) over Vieregge has been overcome, as described hereinabove, and there is no argument put forth by the Examiner that Gillett or Soltysiak supply that which is

missing from Vieregge to render independent claim 1 unpatentable, this ground of rejection cannot be maintained.

Therefore, claims 7-9 are patentable under 35 U.S.C. 103(a) over Vieregge in view of Gillett and further in view of Soltysiak.

Appellant respectfully requests that the rejection be withdrawn.

2. Claims 24-26

Claims 24-26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Vieregge and Gillett, and further in view of Soltysiak. The rejection is traversed.

Claims 24-26 depend from independent claim 22 and recite additional limitations thereof. Appellant submits that since the rejection of independent claim 22 under 35 U.S.C. 103(a) over Vieregge has been overcome, as described hereinabove, and there is no argument put forth by the Examiner that Gillett or Soltysiak supply that which is missing from Vieregge to render independent claim 22 unpatentable, this ground of rejection cannot be maintained.

Therefore, claims 24-26 are patentable under 35 U.S.C. 103(a) over Vieregge in view of Gillett and further in view of Soltysiak.

Appellant respectfully requests that the rejection be withdrawn.

D. Claim 10-11

Claims 10-11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Vieregge in view of Li and Ryhorchuk. The rejection is traversed.

Claims 10-11 depend from independent claim 1 and recite additional limitations thereof. Appellant submits that since the rejection of independent claim 1 under 35 U.S.C. 103(a) over Vieregge has been overcome, as described hereinabove, and there is no argument put forth by the Examiner that Li or Ryhorchuk supply that which is missing from Vieregge to render independent claim 1 unpatentable, this ground of rejection cannot be maintained.

Therefore, claims 10-11 are patentable under 35 U.S.C. 103(a) over Vieregge in view of Li and Ryhorchuk.

Appellant respectfully requests that the rejection be withdrawn.

E. Claims 20-21

Claims 20-21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Li in view of Ryhorchuk. The rejection is traversed.

Obviousness Arguments

The Examiner bears the initial burden of establishing a prima facie case of obviousness. See MPEP §2141. Establishing a prima facie case of obviousness begins with first resolving the factual inquiries of Graham v. John Deere Co. 383 U.S. 1 (1966). The factual inquiries are as follows:

(A) determining the scope and content of the prior art;

(B) ascertaining the differences between the claimed invention and the prior art;

(C) resolving the level of ordinary skill in the art; and

(D) considering any objective indicia of nonobviousness.

Once the Graham factual inquiries are resolved, the Examiner must determine whether the claimed invention would have been obvious to one of ordinary skill in the art. The key to supporting a rejection under 35 U.S.C. §103 is the clear articulation of the reasons why the claimed invention would have been obvious. The analysis supporting such a rejection must be explicit. "[R]ejections on obviousness grounds cannot be sustained by mere conclusory statements; instead, there must be some articulated reasoning with some rational underpinning to support the legal conclusion of obviousness." In re Kahn, 441 F. 3d 977, 988 (CA Fed. 2006), cited with approval in KSR Int'l Co. v. Teleflex, Inc., 126 S. Ct. 2965 (2006); see also MPEP §2141.

According to MPEP §2143.03: "[a]ll words in a claim must be considered in judging the patentability of that claim against the prior art" (*quoting*, *In re Wilson*, 424 F.2d 1382, 1385, 165 USPQ 494, 496 (CCPA 1970)). In addition, to establish a prima facie case of obviousness the prior art reference (or references when combined) must teach or suggest all elements of the subject claim. *In re Wada*, 2007-3733 (BPAI Jan. 14, 2008) (*citing*, *CMFT, Inc. v. Yieldup Intern. Corp.*, 349 F.3d 1333, 1342 (Fed.Cir. 2003)).

Li and Ryhorchuk, alone or in combination, fail to teach or suggest all the claim limitations of Appellant's independent claim 20. Namely, Li and Ryhorchuk, alone or in combination, fail to teach or suggest at least the limitations of "in response to detection of a condition on said first optical channel without detection of a condition on said second optical channel, switching the in-band signal to a third optical channel using a span switch operation" and "in response to detection of a condition on said first optical channel and detection of a condition on said second optical, switching the in-band signal to a third optical channel using a ring switch operation," as claimed in Appellant's claim 20.

Li discloses an optical channel shared protection ring. More specifically, Li discloses a four-fiber or two-fiber, two-wavelength optical channel switched protection ring architecture. (Li, Abstract).

Li, however, fails to teach or suggest at least the limitations of "in response to detection of a condition on said first optical channel without detection of a condition on said second optical channel, switching the in-band signal to a third optical channel using a span switch operation" and "in response to detection of a condition on said first optical channel and detection of a condition on said second optical, switching the in-band signal to a third optical channel using a ring switch operation," as claimed in Appellant's claim 20.

Rather, although Li discloses use of span switch operations and ring switch operations, Li fails to teach or suggest use of an out-of-band signal and, thus, fails to teach or suggest switching an in-band signal to a third optical channel in response to detection of a condition on a first optical channel without detection of a condition on the second optical channel (which conveys an out-of-band signal) or switching the in-band signal to a third optical channel in response to detection of a condition on the first optical channel and detection of a condition on the second optical channel (which conveys an out-of-band signal).

In the Final Office Action, dated November 19, 2008, the Examiner admits that Li fails to teach or suggest use of an out-of-band signal. The Examiner then cites Ryhorchuk, asserting that Ryhorchuk discloses an optical supervisory channel which carries an out-of-band signal, and, thus, that Appellant's claim 20 is obvious in view of

the teachings of Li and Ryhorchuk. (Final Office Action, Pg. 8). Appellant respectfully disagrees.

Ryhorchuk fails to bridge the substantial gap between Li and Appellant's claim 20.

Ryhorchuk discloses a system for detecting faults in an optical network having switching nodes and amplifier nodes, where each amplifier node is capable of detecting a fault condition on an incoming line. (Ryhorchuk, Abstract).

Ryhorchuk, however, alone or in combination with Li, fails to teach or suggest at least the limitations of "in response to detection of a condition on said first optical channel without detection of a condition on said second optical channel, switching the in-band signal to a third optical channel using a span switch operation" and "in response to detection of a condition on said first optical channel and detection of a condition on said second optical, switching the in-band signal to a third optical channel using a ring switch operation," as claimed in Appellant's claim 20.

Rather, although Ryhorchuk discloses an optical supervisory channel, Ryhorchuk merely states that the each node receives status information from upstream nodes via the optical supervisory channel, and that the status information includes information that at least one upstream controller has measured or otherwise collected regarding the status of the network channels. (Ryhorchuk, Col. 8, Lines 46 – 50).

Ryhorchuk is devoid of any teaching or suggestion that the optical supervisory channel is used in the same manner as the out-of-band signal of the second optical channel of Appellant's claim 20. More specifically, Ryhorchuk does not disclose use of the optical supervisory channel in combination with an in-band signal to determine whether a span switch or ring switch operation is performed to switch an in-band signal to another optical channel. Rather, as noted hereinabove, Ryhorchuk merely discloses use of the optical supervisory channel to convey status information between nodes.

Furthermore, Appellant notes that, based on the teachings of Li and Ryhorchuk, a system according to the combination of Li and Ryhorchuk would merely disclose a system in which protection switching may be performed using span or ring switch operations, and in which an optical supervisory channel may be used to exchange status information between nodes. In other words, a system according to the combination of Li

and Ryhorchuk merely discloses presence of in-band and out-of-band signals within the same system, however, a system according to the combination of Li and Ryhorchuk fails to disclose use of a combination of the in-band signal and the out-of-band signal in the manner claimed in Appellant's claim 20. Namely, a system according to the combination of Li and Ryhorchuk fails to disclose performing a span switch operation or a ring switch operation based on a combination of the presence/absence of conditions on optical channels conveying in-band and out-of-band signals. Thus, a system according to the combination of Li and Ryhorchuk fails to disclose switching an in-band signal to a third optical channel using a span switch operation in response to detection of a condition on the first optical channel without detection of a condition on the second optical channel or switching the in-band signal to a third optical channel using a ring switch operation in response to detection of a condition on the first optical channel and detection of a condition on the second optical, as claimed in Appellant's claim 20.

Thus, Li and Ryhorchuk, alone or in combination, fail to teach or suggest switching an in-band signal to a third optical channel using a span switch operation in response to detection of a condition on the first optical channel without detection of a condition on the second optical channel or switching the in-band signal to a third optical channel using a ring switch operation in response to detection of a condition on the first optical channel and detection of a condition on the second optical, as claimed in Appellant's claim 20.

Reasoning for Obviousness Arguments

As noted hereinabove, "[r]ejections on obviousness grounds cannot be sustained by mere conclusory statements; instead, there must be some articulated reasoning with some rational underpinning to support the legal conclusion of obviousness." In re Kahn, 441 F. 3d 977, 988 (CA Fed. 2006), cited with approval in KSR Int'l Co. v. Teleflex, Inc., 126 S. Ct. 2965 (2006).

Appellant respectfully submits that the Examiner's reasoning fails to support the Examiner's conclusion of the obviousness of Appellant's claim 20. As noted in the Final Office Action, dated November 19, 2008, the Examiner's reasoning for the rejection of claim 20 is associated with communication of status information on the OSC channel of

Ryhorchuk. Specifically, the Examiner states that "[o]ne of ordinary skill in the art would have been motivated to combine the teachings of Ryhorchuk et al. with the ring network of Li because OSC channel can be used for communicating status information between nodes. Thus it would have been obvious to one of ordinary skill in the art at the time the invention was made to include an OSC channel, as taught by Ryhorchuk et al., in the ring network of Li because OSC channel can be used for communicating status information between nodes." (Final Office Action, Pg. 8, Emphasis added). As claimed in Appellant's claim 20, however, a span switch operation or a ring switch operation is performed based on the presence/absence of conditions on optical channels conveying in-band and out-of-band signals. Namely, in response to detection of a condition on a first optical channel without detection of a condition on a second optical channel, an in-band signal is switched to a third optical channel using a span switch operation, and, in response to detection of a condition on a first optical channel and detection of a condition on a second optical, an in-band signal is switched to a third optical channel using a ring switch operation. The communication of measured/collected status information on an OSC channel, as disclosed in Ryhorchuk, has nothing to do with performing a span switch operation or a ring switch operation based on the presence/absence of conditions on optical channels conveying in-band and out-of-band signals. Thus, the Examiner's reasoning does not support a finding of obviousness of Appellant's claim 20 and, therefore, the rejection is improper.

Inherency Arguments

In the Final Office Action, dated November 19, 2008, the Examiner fails to cite any portion of Li or Ryhorchuk which discloses switching an in-band signal to a third optical channel using a span switch operation in response to detection of a condition on the first optical channel without detection of a condition on the second optical channel or switching the in-band signal to a third optical channel using a ring switch operation in response to detection of a condition on the first optical channel and detection of a condition on the second optical, as claimed in Appellant's claim 20. Rather, the Examiner merely makes a conclusory statement that "[i]t is also obvious that if the in-band data channel fails while the OSC channel is working, it indicates a channel failure

and span switch is appropriate. If both the in-band data channel and the OSC channel fail, it indicates a fiber failure and ring switch is necessary." (Office Action, Pg. 8).

Appellant notes that the Examiner fails to cite any portion of Li or Ryhorchuk as the basis for this conclusion and, further, fails to provide any other basis for this conclusion. Thus, since neither of the references cited by the Examiner discloses the arrangement of Appellant's claim 1, and the Examiner provides no other basis of support for this conclusory statement, Appellant submits that the Examiner must be relying on inherency to meet the limitations of Appellant's claim 20.

The fact that a certain result or characteristic may occur or be present in the prior art is not sufficient to establish the inherency of that result or characteristic. *In re Rijckaert*, 9 F.3d 1531, 1534, 28 USPQ2d 1955, 1957 (Fed. Cir. 1993) (emphasis added). *See MPEP* § 2112. To establish inherency, the extrinsic evidence 'must make clear that the missing descriptive matter is necessarily present in the thing described in the reference, and that it would be so recognized by persons of ordinary skill. Inherency, however, may not be established by probabilities or possibilities. The mere fact that a certain thing may result from a given set of circumstances is not sufficient.' In re Robertson, 169 F.3d 743, 745, 49 USPQ.2d 1949, 1950-51 (Fed. Cir. 1999). See id.

Li and Ryhorchuk do not inherently teach that if the in-band data channel fails while the OSC channel is working it indicates a channel failure and span switch is appropriate, or that if both the in-band data channel and the OSC channel fail it indicates a fiber failure and ring switch is necessary, because Li and Ryhorchuk do not necessarily require that if the in-band data channel fails while the OSC channel is working it indicates a channel failure and span switch is appropriate, or that if both the in-band data channel and the OSC channel fail it indicates a fiber failure and ring switch is necessary. Thus, the Examiner's argument deals in probabilities and possibilities, which are insufficient to establish inherency. Robertson, 49 USPQ2d at 1950.

As such, Li and Ryhorchuk each fail to inherently teach or suggest at least the limitations of "in response to detection of a condition on said first optical channel without detection of a condition on said second optical channel, switching the in-band signal to a third optical channel using a span switch operation" and "in response to detection of a condition on said first optical channel and detection of a condition on said second optical,

switching the in-band signal to a third optical channel using a ring switch operation," as claimed in Appellant's claim 20.

Additional Considerations

Furthermore, Appellant respectfully submits that the Examiner has failed to establish a prima facie case of obviousness of Appellant's claim 20, because the Examiner has failed to address the limitations of transmitting an in-band signal via a first optical channel towards a multiplexer and transmitting an out-of-band signal via a second optical channel towards *the* multiplexer, i.e., toward the same multiplexer, as claimed in Appellant's claim 20.

The Examiner has failed to cite any portion of Li or Ryhorchuk which discloses transmitting an in-band signal via a first optical channel towards a multiplexer and transmitting an out-of-band signal via a second optical channel towards the same multiplexer, as claimed in Appellant's claim 20. Furthermore, in the absence of such a citation to Li and/or Ryhorchuk, the Examiner has failed to provide any reasoning addressing the limitations of transmitting an in-band signal via a first optical channel towards a multiplexer and transmitting an out-of-band signal via a second optical channel towards *the* multiplexer, as claimed in Appellant's claim 20. The Examiner simply does not address this limitation of Appellant's claim 20.

As described hereinabove, the Examiner admits that Li fails to teach or suggest use of an out-of-band signal. Thus, Li also must fail to teach or suggest transmitting an in-band signal via a first optical channel towards a multiplexer and transmitting an out-of-band signal via a second optical channel towards *the* multiplexer, as claimed in Appellant's claim 20. Furthermore, although Ryhorchuk discloses an OSC channel, Ryhorchuk is devoid of any teaching or suggestion that an in-band signal and the OSC signal are both transmitted toward a common multiplexer. Thus, Li and Ryhorchuk, alone or in combination, fail to teach or suggest transmitting an in-band signal via a first optical channel towards a multiplexer and transmitting an out-of-band signal via a second optical channel towards *the* multiplexer, as claimed in Appellant's claim 20.

Thus, Li and Ryhorchuk, alone or in combination, fail to teach or suggest all the claim limitations of Appellant's independent claim 20.

Conclusion

As such, independent claim 20 is allowable over Li in view of Ryhorchuk under 35 U.S.C. 103. Furthermore, since all of the dependent claims that depend from the independent claims include all the limitations of the respective independent claim from which they ultimately depend, each such dependent claim is also allowable over Li in view of Ryhorchuk under 35 U.S.C. 103(a).

Appellant respectfully requests that the rejection be withdrawn.

F. Claims 27-28

Claims 27-28 are rejected under 35 U.S.C. 103(a) as being unpatentable over Vieregge, Gillett, and Soltysiak, and further in view of de Boer. The rejection is traversed.

Claims 27 and 28 depend from independent claim 22 and recite additional limitations thereof. Appellant submits that since the rejection of independent claim 22 under 35 U.S.C. 103(a) over Vieregge has been overcome, as described hereinabove, and there is no argument put forth by the Examiner that Gillett, Soltysiak, or de Boer supply that which is missing from Vieregge to render independent claim 22 unpatentable, this ground of rejection cannot be maintained.

Therefore, claims 27-28 are patentable over Vieregge, Gillett, Soltysiak, and de Boer under 35 U.S.C. 103(a).

Appellant respectfully requests that the rejection be withdrawn.

Conclusion

This Amended Appeal Brief is submitted to correct the deficiencies noted by the Office. Appellant submits that all of the claims presently in the application are allowable.

For the reasons advanced above, Appellant respectfully urges that the rejection of claims 1-3, 7-11, 20-22 and 24-28 is improper. Reversal of the rejection of the Final Office Action is respectfully requested.

Respectfully submitted,

Dated: 4/8/09

Eamon J. Wall
Registration No. 39,414
Wall & Tong, LLP
595 Shrewsbury Ave., Suite 100
Shrewsbury, NJ 07702
Telephone: (732) 842-8110 x120
Facsimile: (732) 842-8388
Attorney for Appellant

CLAIMS APPENDIX

1. (previously presented) A method, comprising:

(a) collecting a plurality of bit error rate (BER) values;

(b) storing said BER values;

(c) analyzing said BER values using a BER hysteresis algorithm to check for an indication of BER degradation, wherein said analyzing comprises:

comparing each of a plurality of recent ones of said collected BER values to a predetermined BER threshold level, wherein said recent ones of said collected BER values include a subset of said collected BER values;

determining, for each of said recent ones of said collected BER values, whether said recent BER value exceeds said predetermined BER threshold level;

in response to a determination that each of said recent ones of said collected BER values exceeds the predetermined BER threshold level, determining whether said collected BER values worsen over time;

in response to a determination that said collected BER values worsen over time, detecting an indication of BER degradation; and

(d) switching a transmission port in response to said indication of BER degradation.

2. (original) The method of claim 1, wherein said BER values are collected at a predetermined interval.

3. (previously presented) The method of claim 1, wherein said collected BER values are stored in an array.

4. (cancelled)

5. (cancelled)

6. (cancelled)

7. (previously presented) The method of claim 1, wherein step (c) comprises:

(c1) setting a flag to zero;

(c2) acquiring a recent BER value;

(c3) determining whether said recent BER value exceeds said predetermined BER threshold level;

(c4) incrementing said flag, storing said recent BER value in an array, and comparing said flag with said BER degradation threshold upon a positive determination in step (c3);

(c5) setting said flag to zero and storing said BER value in said array upon a negative determination is step (c3);

(c6) repeating steps (c2)-(c5) until said flag is greater than a BER degradation threshold;

(c7) determining whether a predetermined number of BER values in said array worsen over time; and

(c8) issuing a trigger signal that switching is required upon a positive determination in step (c7).

8. (previously presented) The method of claim 7, wherein step (c) further comprises:

(c9) determining whether said predetermined number of BER values fluctuate randomly upon a negative determination in step (c7);

(c10) classifying said predetermined number of BER values as a transient disturbance, setting said flag to zero, and proceeding to step (c2) upon a positive determination in step (c9); and

(c11) determining whether said predetermined number of BER values are similar upon a negative determination in step (c9).

9. (previously presented) The method of claim 8, wherein step (c) further comprises:

(c12) classifying said predetermined number of BER values as a transient disturbance, setting said flag to zero, and proceeding to step (c2) upon a negative determination in step (c11); and

(c13) issuing a trigger signal that switching is required upon a positive determination in step (c11).

10. (previously presented) The method of claim 1, wherein said method is adapted for use in monitoring a transmission port associated with a first optical channel in an optical transmission system, said method further comprising:

transmitting an in-band signal via said first optical channel towards a multiplexer;

transmitting an out-of-band signal via a second optical channel towards said multiplexer; and

transmitting said in-band signal via a third optical channel towards said multiplexer in response to an indication of BER degradation of said first optical channel.

11. (previously presented) The method of claim 1, wherein said method is adapted for use in monitoring transmission ports associated with each of a first optical channel and a second optical channel in an optical transmission system, said method further comprising:

transmitting an in-band signal via said first optical channel towards a multiplexer;

transmitting an out-out-band signal via a second optical channel towards said multiplexer; and

transmitting said in-band signal via a third optical channel towards a second multiplexer in response to an indication of BER degradation of said first and second optical channels.

20. (previously presented) A method, comprising:

transmitting an in-band signal via a first optical channel towards a multiplexer;

transmitting an out-of-band signal via a second optical channel towards said multiplexer;

in response to detection of a condition on said first optical channel without detection of a condition on said second optical channel, switching the in-band signal to a third optical channel using a span switch operation; or

in response to detection of a condition on said first optical channel and detection of a condition on said second optical, switching the in-band signal to a third optical channel using a ring switch operation.

21. (previously presented) The method of claim 20, wherein:

when said span switch operation is performed, said in-band signal is transmitted via said third optical channel using said multiplexer; or

when said ring switch operation is performed, said in-band signal is transmitted via said third optical channel using a different multiplexer.

22. (previously presented) An optical switch comprising a processor in a memory, said optical switch adapted to perform the steps of:

(a) collecting a plurality of bit error rate (BER) values;

(b) storing said BER values;

(c) analyzing said BER values using a BER hysteresis algorithm to check for an indication of BER degradation, wherein said analyzing comprises:

comparing each of a plurality of recent ones of said collected BER values to a predetermined BER threshold level, wherein said recent ones of said collected BER values include a subset of said collected BER values;

determining, for each of said recent ones of said collected BER values, whether said recent BER value exceeds said predetermined BER threshold level;

in response to a determination that each of said recent ones of said collected BER values exceeds the predetermined BER threshold level, determining whether said collected BER values worsen over time;

in response to a determination that said collected BER values worsen over time, detecting an indication of BER degradation; and

(d) switching a transmission port in response to said indication of BER degradation.

23. (cancelled)

24. (previously presented) The apparatus of claim 22, wherein said step (c) comprises:

(c1) setting a flag to zero;

(c2) acquiring a recent BER value;

(c3) determining whether said recent BER value exceeds said predetermined BER threshold level;

(c4) incrementing said flag, storing said recent BER value in an array, and comparing said flag with said BER degradation threshold upon a positive determination in step (c3);

(c5) setting said flag to zero and storing said BER value in said array upon a negative determination is step (c3);

(c6) repeating steps (c2)-(c5) until said flag is greater than said predetermined maximum flag value;

(c7) determining whether a predetermined number of recently acquired BER values worsen over time; and

(c8) issuing a trigger signal that switching is required upon a positive determination step (c7).

25. (previously presented) The apparatus of claim 24, wherein said step (c) further comprises:

(c9) determining whether said predetermined number of recently acquired BER values fluctuate randomly upon a negative determination in step (c7);

(c10) classifying said recently acquired BER values as a transient disturbance, setting said flag to zero, and proceeding to step (c2) upon a positive determination in step (c9); and

(c11) determining whether said predetermined number of recently acquired BER values is similar upon a negative determination in step (c9).

26. (previously presented) The apparatus of claim 25, wherein said step (c) further comprises:

(c12) classifying said recently acquired BER values as a transient disturbance, setting said flag to zero, and proceeding to step (c2) upon a negative determination in step (c11); and

(c13) issuing a trigger signal that switching is required upon a positive determination in step (c11).

27. (previously presented) The apparatus of claim 26, further adapted to transmit a switching request periodically until the expiration of a predetermined time or until receipt of an acknowledgement signal.

28. (original) The apparatus of claim 27, further adapted to issue a signal to switch to a protection channel in response to said acknowledgement signal.

EVIDENCE APPENDIX

None

RELATED PROCEEDINGS APPENDIX

None